

Blackland Prairie Riparian Corridors

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Environmental Commission

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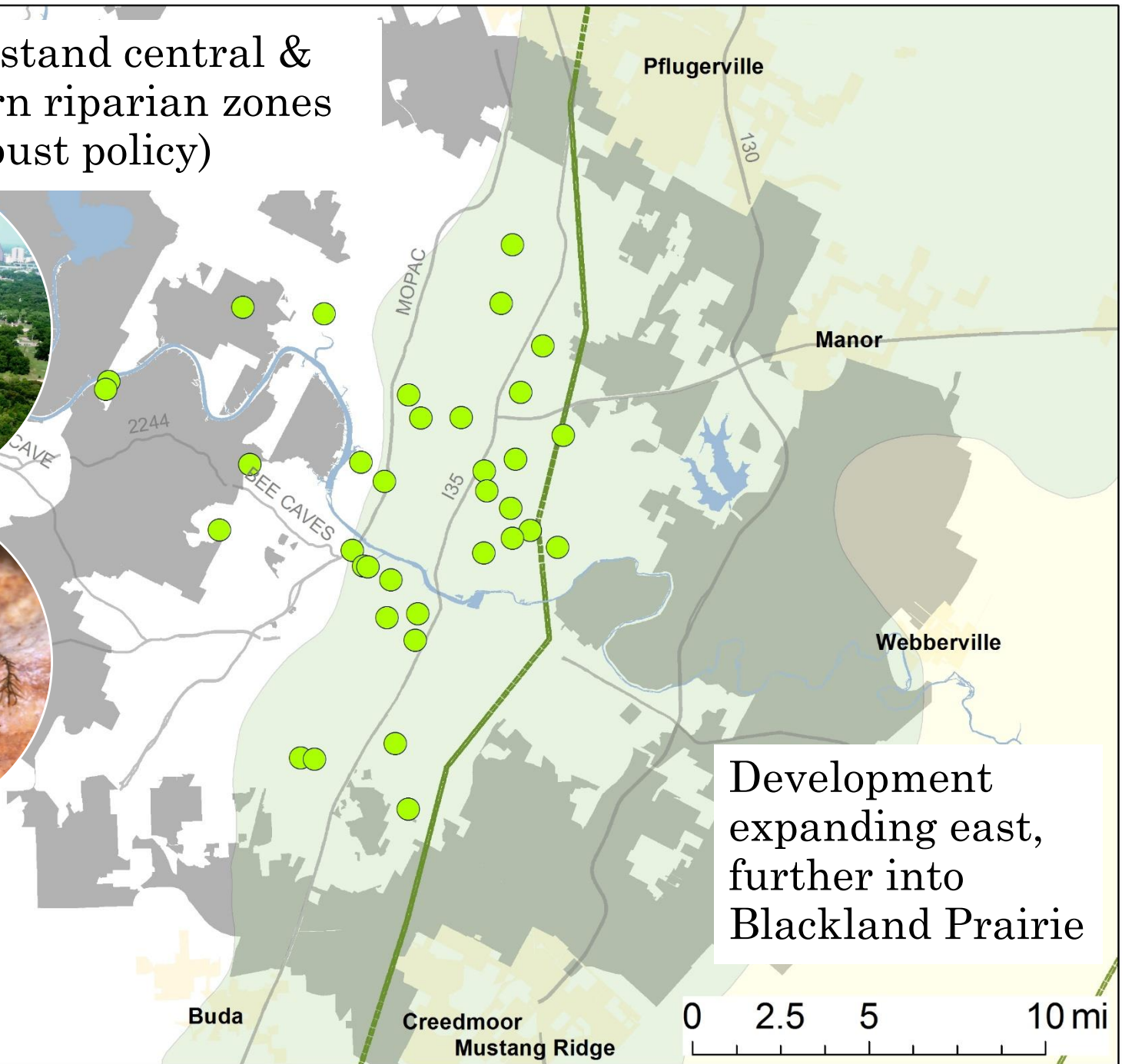
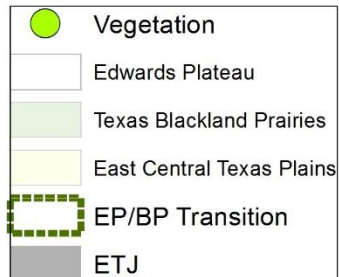
Outline

- Motivation for the study
- Expectations / Hypotheses
- Findings
- Implications
 - Watershed & local scales
 - Policy



trib to Wilbarger Crk

Understand central &
western riparian zones
(→ robust policy)



Motivation

Historical Blackland Prairie riparian buffers

Expectations for BP riparian buffers

- Bottomland woodlands, wetlands & range of channel stabilities



TEXAS NATIVES

BLACKLAND PRAIRIES

(Sharples, 1993; TPWD, 2017; Weniger, 1984)

Motivation

Blackland Prairie

Contrast vs. western creeks

- Deep, fertile clays & fine sediment streams
 - More erodible banks & stream beds
- Legacy clearing, grazing & row crops



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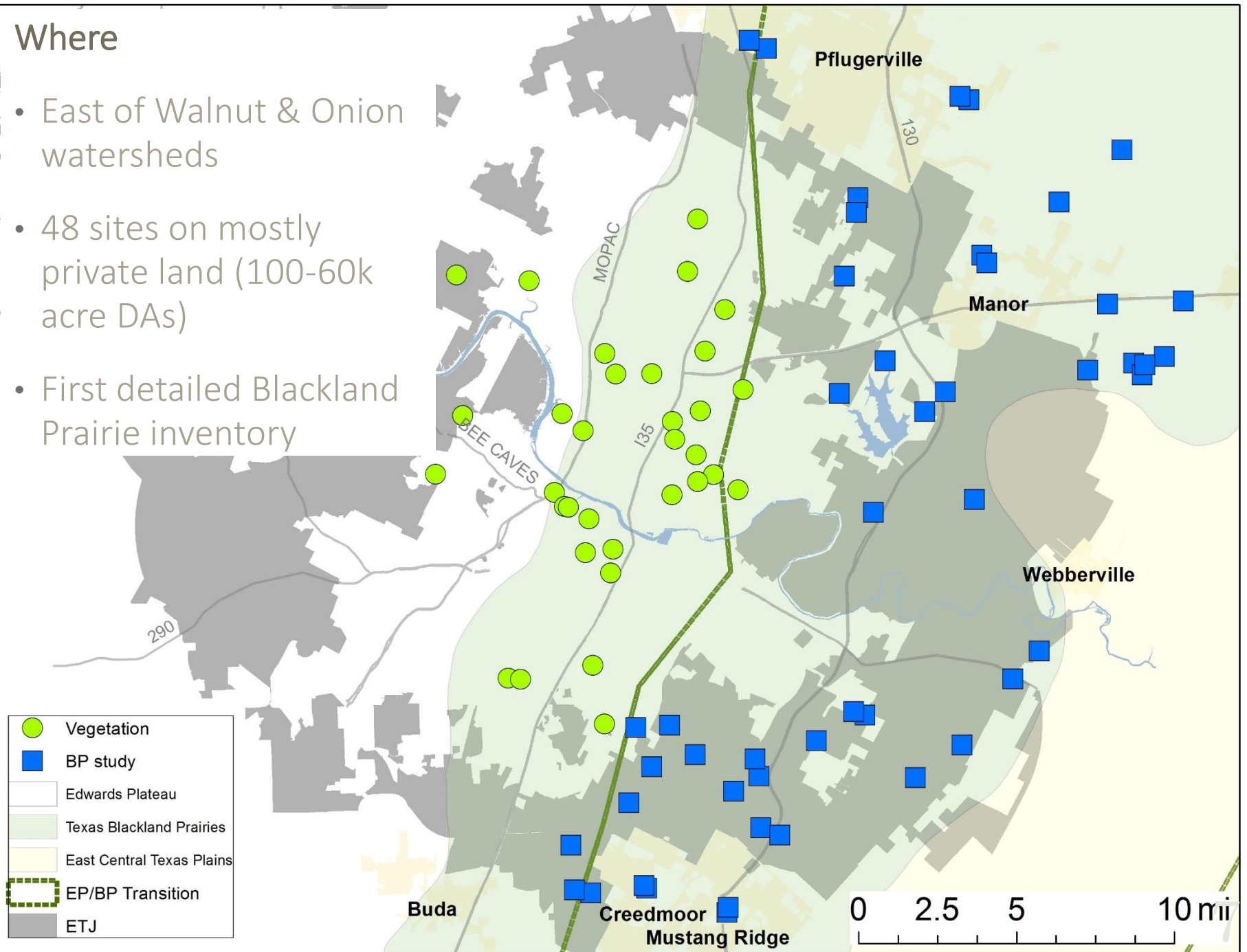
Study objectives

- Characterize condition of riparian corridors for the eco-region
- Gain understanding to prioritize conservation efforts
 - Are current protection policies sufficient here?



Where

- East of Walnut & Onion watersheds
- 48 sites on mostly private land (100-60k acre DAs)
- First detailed Blackland Prairie inventory



Characterization methods

Vegetation plots & channel geometry



trib to Elm Crk

Findings:

Findings: Woody vegetation



Findings: Woody vegetation

Low impervious cover, but poor conditions



trib to Elm Crk



Maha Crk



trib to Gilleland

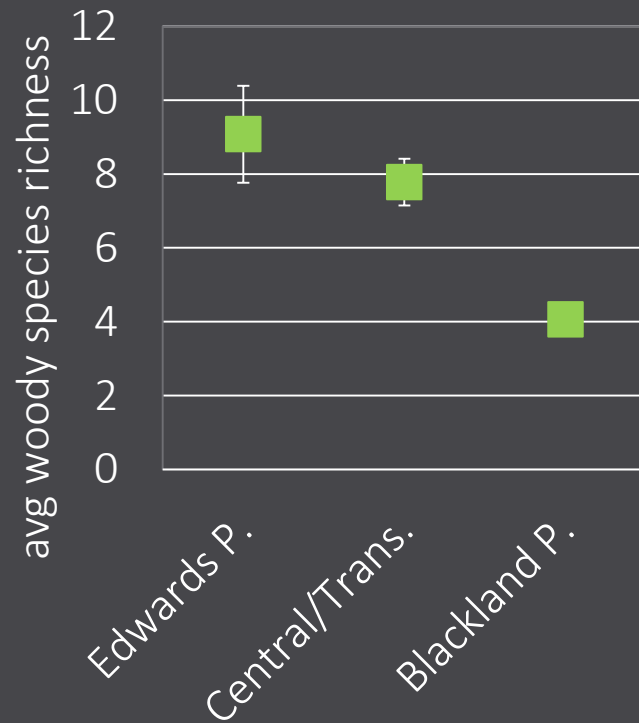


North Fork Dry Crk

Findings: Woody vegetation

Significantly less than urban

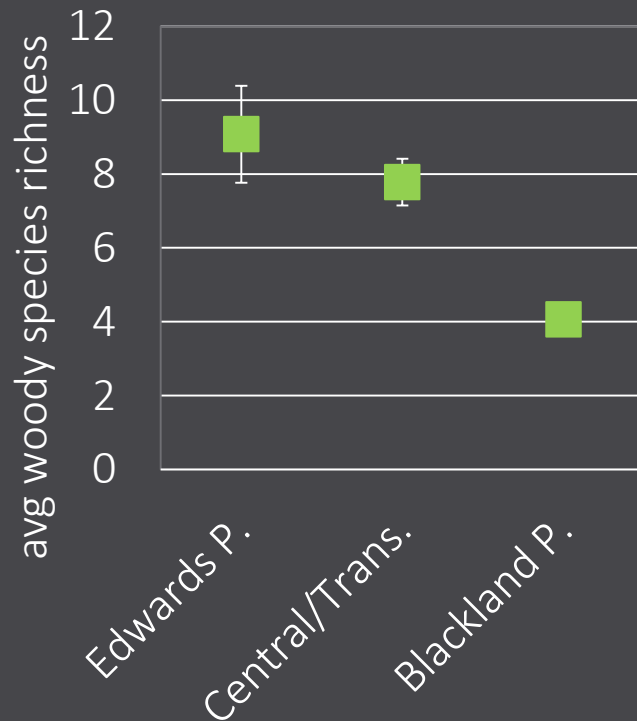
Diversity in riparian buffer



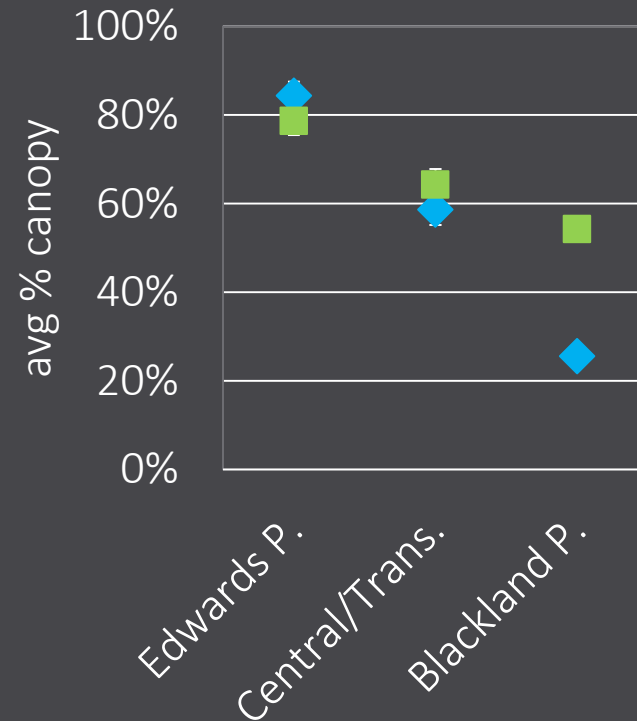
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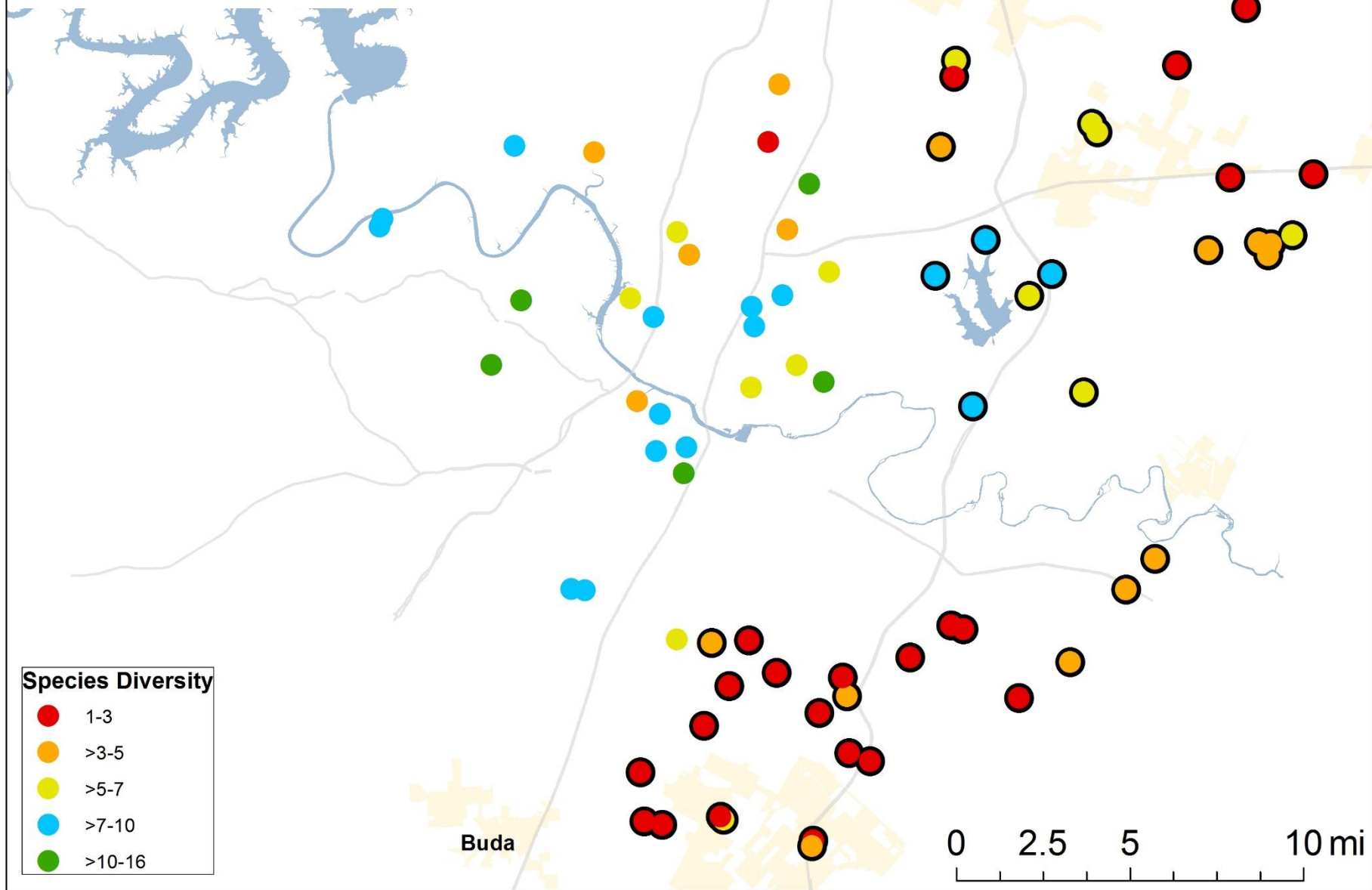


Canopy in riparian buffer



■ Local riparian (reach/site)
◆ Upstream riparian

Highest diversity in study occurred adjacent Walter E Long & nearby forested areas



Findings: Floodplain connectivity

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Highly incised (with & without vegetation)



Gilleland Crk West



trib to Gilleland Crk



Rinard Crk



trib to Gilleland Crk

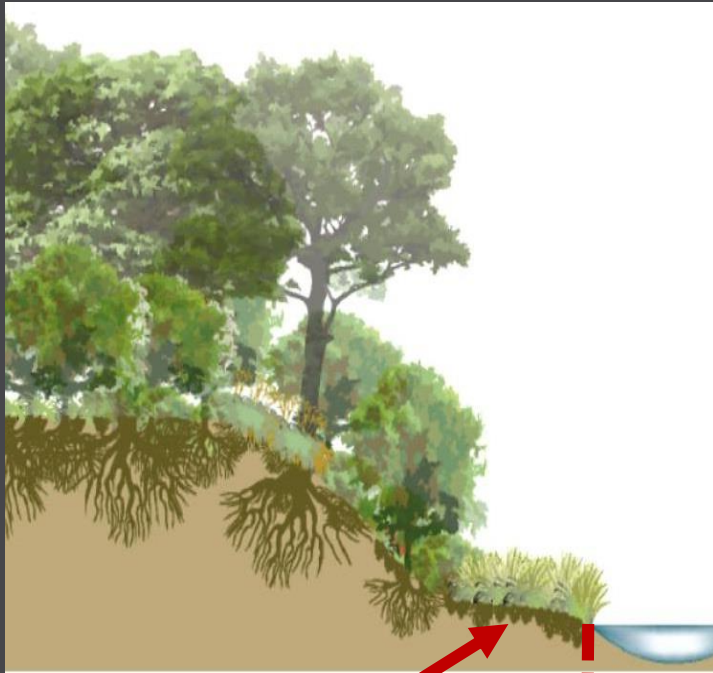
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Highly incised channels lower water table



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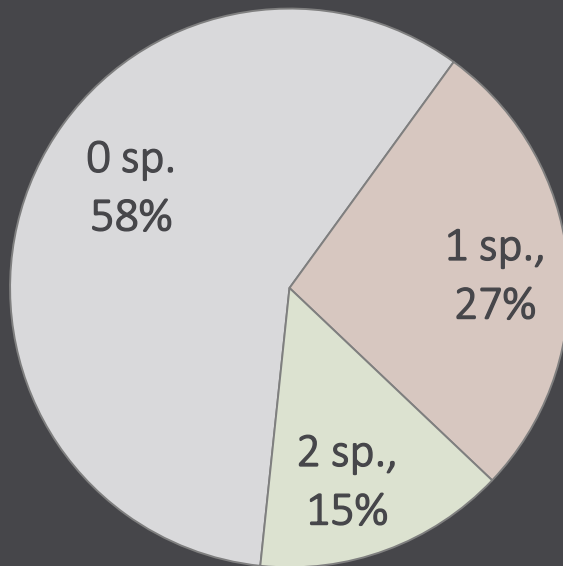
too dry

too active

Findings: Floodplain connectivity

Highly incised channels lower water table

woody wetlands



Cannot support wetlands

site with 2 wetland sp. (study max)



Dry Crk East

site with 0 wetland sp.



trib to Gilleland Crk

Blackland Prairie

Study summary

Expectations	Findings
Robust bottomland woodlands	Low frequency and low diversity. Low canopy coverage.
Wetlands	Rare and low diversity.
Range of channel stability	Many incised.
	Traditional channel metrics not applicable in incised systems.




Blackland Prairie

Implications

- Recorded different sensitivities than more western streams
 - WQ & erosion policies in east need to reflect local conditions
 - ~0% impervious but still poor riparian vegetation
- WPO (2013): Critical first step in not permitting *new* development in riparian zones
 - Does not explicitly describe the quality of buffers needed



Blackland Prairie Implications

Riparian Condition	1. Lasting effects of legacy land management & incision	2. Vulnerability of incision & headcut migration	3. Land remains highly erosive
Implications	Must also accelerate riparian establishment	Must also add grade controls/bed resistance	Extreme caution with any increased erosive forces
	Revegetation management via programmatic outreach (private-public partnerships)	<ul style="list-style-type: none"> • Re-establish degraded channels • Protect existing stable channels 	 <p>trib to Gilleland Crk</p>

Questions?



North Fork Dry Creek